Vision, Space, and Embodiment: Interpretation of English Idioms by Serbian Students

Selected Papers from UK-CLA Meetings
http://uk-cla.org.uk/proceedings
Vol 1: 385 – 400

MIHAILO ANTOVIĆ
University of Niš / Case Western Reserve University
mihailo.antovic@filfak.ni.ac.rs

DUŠAN STAMENKOVIĆ
University of Niš
dusan.stamenkovic@filfak.ni.ac.rs

The study tries to evaluate two approaches to conceptualisation by testing how Serbian respondents interpret literally translated English idioms. The development of concepts is a pressing issue in cognitive science and the importance of visuo-spatial relations on the one hand and embodiment on the other in this process is particularly stressed, depending on the approach. We have presented 90 undergraduate Serbian students with no formal training in English with literally translated English idiomatic expressions and asked them to guess their meanings. The goal was to investigate whether the expressions would be properly interpreted and whether there would be differences in the degree of correct interpretation between the groups of idioms offered. The idioms had no direct equivalents in Serbian and were classified into three groups: (1) visuo-spatial bodily idioms; (2) bodily only idioms; (3) random non-bodily idioms. The results suggest that there is a clear difference between the understanding of the three groups of idioms: those with the visuo-spatial component are understood best, followed by idioms referring to the body only and random idioms respectively. This result could provide some support to the idea that embodiment, especially when coupled with visual cognition, is a primary source of conceptualisation.

Keywords: vision, space, embodiment, conceptualization, idioms

1. Introduction

1.1 Aims

The main aim of the paper is to provide empirical support for studies which stress the importance of vision, spatial relations and embodiment in the process of conceptualisation. In order to achieve this goal, it investigates whether (1) visuo-spatial configurations and/or (2) an explicit reference to a body part can aid the interpretation of unknown idiomatic expressions. The argument is based on an empirical study in which we tried to address this problem by testing how Serbian respondents interpreted literally translated

English idioms.

1.2 Theoretical Background

Categorisation and its closely related domain of conceptualisation are classical problems of the philosophy of mind and cognitive science. Since the final quarter of the 20th century three big groups of theories seem to have been delineated to approach the problem: atomistic, probabilistic and exemplar (Smith and Medin, 1981). In shortest terms, the first group believes that concepts are objectively verifiable and representative of entities from the real world, and that they can be analyzed by being broken down into ever simpler building blocks, known as 'primes' or 'conceptual primitives' (Wierzbicka 1996; Jackendoff 1983, 1990). The second approach claims that it is the relative presence or absence of a series of binary features in a percept that motivates human beings to make one conceptualisation instead of another (Fodor and Katz 1964; Chomsky 1981, 1995). Finally, the third set of theories proposes that there are concrete representatives of a category that serve as models for generalization, which ultimately results in the construction of abstract concepts (Rosch 1975; Lakoff 1987).

Cognitive linguistics has largely embraced this third, exemplar approach to conceptualization, which is now widely known as prototype theory. Indeed, such a methodological choice in many ways motivated the development of the entire field (Rosch 1975; Lakoff and Johnson 1981; Lakoff 1987; Johnson 1987; Mandler 1992; Fauconnier and Turner 2002, inter alia). Most of these authors accept that some innate capacities of the infant cognitive system make conceptualisation possible, but reject the strong nativist position (e.g. Chomsky 1988) according to which there is a universal grammar, perhaps also a universal grammar of concepts (Jackendoff 1990) responsible for mechanisms that lead to the categorisation of abstractions. Instead, they usually insist that early physical perception results in inferences that become stored in long-term memory as simplified schematizations, which are then naturally used as prompts to create more and more complex concepts in the adult mind. These are now known as 'image schemas' (Johnson 1987, 2005; Hampe 2005) and are considered a well-established construct of cognitive linguistics.

The role of the bodily and, according to some authors, visuo-spatial experience in the emergence of such schemas seems very important (Arnheim 1969: 13–37; Mandler 2006: 41–51, 66–78). What cognitive linguists sometimes disagree about, however, is whether there is any "primary" perceptual modality responsible for the construction of concepts. Some claim that visual cognition is fundamental (Arnheim 1969; Sweetser 1991), others believe that concepts are built via spatial relations (Jackendoff 1987; Mandler 2006, 2008a/b), while still others propose that conceptualisation is the result of embodiment (Gibbs 2006, 2008). It is of course relatively difficult to disentangle these three interrelated conceptions: the visual system is of crucial importance in our interaction with the world (Marr 1982) and has been best studied among all cognitive capacities (Pinker 1997) – perhaps this is the cause of some bias in assessing its importance in categorization in general. The spatial apparatus is at least partly related to visual stimuli and of course

has a lot to do with bodily balance and orientation. Finally, both constructs are fundamentally related to the broad notion of embodiment that cognitive linguistics has used since its very beginnings (nowadays "embodied mind", after Lakoff and Johnson 1999). Yet, in spite of the interrelated nature of the three constructs, authors do disagree in providing one of them relative primacy over the other two.

In particular, the present study was motivated by the exchange of positions among Jean Mandler, Frank Keil and Raymond Gibbs, which took place in *Philosophical Psychology* in April 2008. In the paper entitled "On the Birth and Growth of Concepts", which triggered the discussion, Mandler describes what the earliest concepts are like and provides a theory of the spatial primitives from which they are formed. Starting from the fact that infants tend to be responsive to spatial information and are particularly attracted to moving objects (which is a tendency influenced by the way the visual system develops), Mandler (2008a: 210–213) claims that they form perceptual schemas of objects. Here, the implicit formation of such schemas in practice corresponds to the implicit learning of similarities, which requires no attention or awareness. She suggests that attentional processes are needed to form the first concepts by means of "finding patterns in perceptual data" and redescribing them through "the conceptual primitives that are the vocabulary of the mechanism" (Mandler 2008a: 212), called *Perceptual Meaning Analysis* (*PMA*). The importance of spatial relations in Mandler's view seems to be best illustrated by the claim that this reformatting mechanism works for blind children as well – "they get spatial information from haptic and auditory input" (ibid.), but it is not as detailed as the kind of information we get from vision. This leaves blind children "lag[ging] behind in their acquisition of object and event knowledge" (Mandler, 2008b: 272). Mandler supports this with empirical data from Landau and Gleitman (1985) and adds that "it is only after language develops that they [blind children] catch up" (Mandler 2008b: 272). The fact that PMA is able to operate independently of vision (at least to a certain degree) is most likely to be the reason why Mandler views the terms 'visual' and 'spatial' separately. Keil (2008: 241–244) admits that a spatial cognitive capacity may form an important basis for later cognitive growth. On the other hand, due to all the complexity that comes out of the process of conceptualization, for him it seems unlikely that the spatial cognitive capacity can be "the sole or even primary explanation for either the impressive conceptual capacities of infants or the ways in which concepts develop" (Keil 2008: 241). Yet another position we meet is the one of Gibbs (2008: 231–239), who basically focuses on integral bodily experience, rather than putting stress on only one component of embodiment. Whilst he believes that mechanisms clustered around *Perceptual Meaning Analysis* might be useful in forming conceptual representations, he claims that Mandler offers no solution to the formation of symbolic representations or other high-order kinds of concepts, which all seem to be "stripped of their embodied roots" (Gibbs, 2008: 231). Gibbs insists that throughout childhood and the rest of our lives, bodily experience plays a crucial role in conceptual development, with abstract concepts created 'on demand', given the moment and the task. At the same time, these abstractions remain connected to original embodied experiences by means of image schematic configurations.

It remains relatively difficult to test these claims experimentally, especially in studies not involving infants. In the present research, we focus on the comprehension of unfamiliar idioms, literally translated from English, by native speakers of Serbian. The argument is that, while they do exist and work in another language, these expressions (1) have meanings not familiar to our respondents and (2) are not transparent, in the sense that the sum of their parts does not provide a logical clue to the meaning of the expression as a whole. Therefore, if these strange idiomatic expressions were to be interpreted better if they contained visual and/or bodily references, this might provide some support to one or both of the theses provided by the authors quoted above.

1.3 Idioms

Idioms are typically defined as phrases that have transferred or 'figurative' meanings, whose common use aids in their interpretation and acceptance in the linguistic community. Although idiomatic expressions can be motivated by some of their constituents, their meaning is most frequently separated from the literal meaning or definition of the constituent words (Katz 1973: 358; Linden 1992: 223). Having in mind various aspects of idiomaticity, Nunberg, Sag and Wasow (1994: 491–497) name the idioms which do not distribute their meaning to their constituents *idiomatic phrases*. These phrases include the famous examples of 'sawing logs', 'shooting the breeze' and 'kicking the bucket'. These authors distinguish such idioms from what they label *idiomatically combining expressions*, which represent those idiomatic constructions whose meaning is conventional and yet distributed to their parts (e.g. 'pull strings', 'take care of' and 'take advantage').[i] With regard to this classification, we may say that the majority of the idioms interpreted in this study belongs to what these authors labelled as *idiomatic phrases*. Nevertheless, we will be able to see the idioms in which we find references to body parts tend to move slightly towards *idiomatically combining expressions*. These references, especially when coupled with visual representations, seem to serve as firm steps towards solving the puzzle of idiomatic meaning.

Idioms are good representatives of 'abstract' concepts (i.e. they have a meaning which is frequently not transparent, but is extended, polysemic and metaphorical) and this makes them a good 'tool' in the study of metaphorical meaning. Other reasons why they seem to be suitable for a study of transferred meaning include the facts that: (1) their opacity often completely overshadows the meanings of their constituent parts, so 'wild guesses' in the process of interpretation are frequently wrong, unless influenced by strong intuition and (2) in very many instances, they do not match crosslinguistically (e.g. the Serbian equivalent of *He sees red* is *It is getting dark before his eye*s).

The problem of idioms seems to have acted as a starting mechanism in cognitive linguistics. Croft and Cruse (2004: 225) claim that it would "not [be] an exaggeration to say that construction grammar grew out of a concern to find a place for idiomatic expressions in the speaker's knowledge of a grammar of their language". They define idioms as "grammatical units larger

than a word which are idiosyncratic in some respect" (*ibid.* p.230). Conventionality is stressed as the main feature of idioms, as in some of them it is too difficult to trace metaphorical content (*ibid.* p.232). Once idioms get translated to a foreign language literally, we may assume that the feature of compositionality should be completely lost in case the expression is non-existent in the target language. What is left is unusual (but frequently metaphorical) content, which might be suitable for comprehension tests. Due to this, once again the problem of idioms seems to have the potential of being a starting mechanism in cognitive studies.

1.4 Research Rationale

The main idea behind the study was to recruit respondents unfamiliar with the target language and ask them to guess the meaning of a number of idioms literally translated from the target (unfamiliar) language to the source (native) language. If the idioms which seem to utilize bodily and/or visuo-spatial experience were understood better, then the thesis that the construction of abstract concepts is based on embodiment and/or visuo-spatial cognition might have some empirical grounding. Therefore, the main research questions are (1) whether Serbian respondents better intuitively understand those expressions which have a 'bodily' or 'visuo-spatial bodily' component when asked to interpret literally translated English idioms and, if this is the case, (2) whether this finding could be used to further support the thesis that embodiment and visuo-spatial experience are fundamentally important in the construction of concepts.

2. Study Design

2.1 Types of Idioms

The idioms presented to our subjects can be divided into three groups, each of them testing the respondents' understanding of one idiomatic type: (a) those for which both visuo-spatial perception and bodily experience seemed necessary; (b) those for which bodily experience only seemed necessary; (c) those for which neither visuo-spatial perception nor bodily experience seemed necessary (random idioms).

a) *Visuo-spatial bodily idioms:* The idioms belonging to the first group were classified as such for the following reasons: (a) all of them clearly refer to a body part; (b) in each of them we encounter movement, transition, positioning or a directional change of state, all of these being related to a certain spatial configuration of objects. It can be assumed that such spatial configurations most likely require vision in order to be perceived and, in turn, understood (either literally or figuratively). This group of idioms may be exemplified by *to cry one's eyes out, to keep one's head down* or *to follow one's nose.*

b) *Bodily only idioms:* The main difference between this and the first type of idioms is in the fact that in these idioms we do not find any kind of movement, transition, positioning or a visible change of state. Yet, all of

them evidently refer to a body part, which implies that at least some form of bodily experience is required in the process of their interpretation. Some of the examples of this group are *to lose heart, to have a sweet tooth* and *to get cold feet*.

c) *Random non-bodily idioms:* The third group practically included a selection of the idioms that did not belong to one of the former two groups – in the idioms belonging to this group, audio-visual configurations were never coupled with body parts. Moreover, body parts were mentioned in none of them. They simply involved idioms of very diverse content. The examples representing this group could be found in the idioms such as *a happy hunting ground*, *a straw in the wind* or *to be in one's cups*.

2.2 Instrument

The idioms were selected from *Cambridge International Dictionary of Idioms* (1998), *Oxford Dictionary of Idioms* (1999) and *Serbian-English Dictionary of Idioms* (1995). All (a) visuo-spatial bodily idioms and (b) bodily only idioms were taken from these dictionaries and each idiom was assigned a number; the remaining idioms (c) were also numbered. A draw was performed in the process of selecting 20 'representatives' of each group of idioms. All idioms with direct formal and semantic correspondents in Serbian were eliminated from the draw. The final result of the procedure were 20 random idioms from all three groups of interest.

The selected idioms were then used in neutral contexts in order to produce 60 sentences which comprised the questionnaire (e.g. *She got her feet wet; It's a happy hunting ground*). These sentences were literally translated into Serbian. With the help of a native speaker, we performed a back translation test to make sure that the translations were indeed literal.

2.3 Procedures and Participants

The study was performed by means of a pen and paper questionnaire containing sixty neutral sentences ordered randomly. Their order was rendered by *Random.org*'s *Sequence Generator*. Respondents filled in their questionnaires all together, in one session and their exact task was to interpret (write down what they believed were) the meanings of the given sentences in Serbian. They were allowed one hour to fill in the questionnaire.

There were two groups of participants:

(1) The first group contained sixty randomly selected second-year students of mechanical engineering. This group involved students with no or very little formal training in English (their English curricula included no more than 5% of the idioms employed in the study).

(2) The second group of participants included thirty randomly selected second-year students of English, who acted as a control group. These students were expected to be familiar with at least 50% of the idioms

given, as these expressions had been used in their advanced-level university training in English.

3. Results

In this section, we present the methodology of data classification and data analysis, and analyse the results we acquired from the questionnaire.

3.1 Data Classification

After the questionnaires were filled in, the answers were classified into five groups against the criteria of correctness and precision:

a) Labelling the answers with 'Value 4' meant that the interpretation of the literally translated idiom was completely correct. An exemplar of this is the interpretation of *to let your hair down* as 'to relax and enjoy yourself';

b) Coding the answers into 'Value 3' implied that the understanding of the idiom was partially correct, which means that it included the recognition of idiomaticity and at least the broad semantic field related to the actual meaning of the idiom. These answers would include claiming that *to have a sweet tooth* means 'to be prone to eating loads of food'. If we consider the fact that *sweets* represent a hyponym of the term 'food', then we may conclude that the only component missing in the process of interpretation of this idiom is the type of food. This is why this interpretation may be regarded as partially correct.

c) Those interpretations marked with 'Value 2' involved answers showing the understanding that there was a metaphor, but with the idiom misinterpreted. For instance, understanding *to laugh one's head off* as 'being crazy' has some possible associative background and cannot be considered literal. On the other hand, it cannot be considered a correct answer in the sense used for the first two categories.

d) Classifying an interpretation as into 'Value 1' meant that it was literal, i.e. it showed no understanding of the metaphor. An illustrative example of this group is interpreting *to put your foot in your mouth* as 'being very elastic'.

e) Value 0 simply meant that there was no answer filled in.

3.2 Data Analysis

After coding the responses into the five mentioned values, three separate scales were made. The scales tested the understanding of (1) visuo-spatial bodily idioms, (2) bodily only idioms, and (3) random non-bodily idioms. For each subject, we calculated the score for the three respective scales by summing up the number of correct responses (value 4 only, the stricter criterion) or the total number of correct and partially correct responses

(values 3 and 4, the less strict criterion). As there was a total of 20 idioms for each of the scales, we got the score ranging from 0 to 20 per respondent. In the analysis, those scores were used as the principal indicator of how successfully our participants interpreted each of the three idiom groups.

Reliability analysis has shown that the use of these items provides consistent results and this is supported by the following figures:

a) *Scale 1* (involving visuo-spatial bodily idioms): Cronbach's Alpha = 0.91, average inter-item correlation = 0.33
b) *Scale 2* (involving bodily only idioms): Cronbach's Alpha = 0.90, average inter-item correlation = 0.30
c) *Scale 3* (involving random non-bodily idioms): Cronbach's Alpha = 0.88, average inter-item correlation = 0.28.

After the reliability of the scales was confirmed, we conducted an analysis in order to check for any differences in the understanding of the three groups of idioms in each group, and also differences between the performance of the two groups.

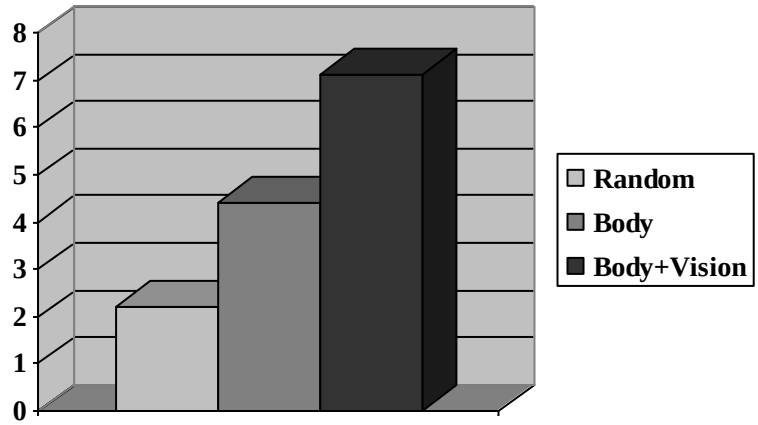
3.3 Results

The first tendency that our results strongly suggest is that the application of either the stricter or the less strict criterion leads to similar results: visuo-spatial bodily idioms are understood best, and are followed by bodily and 'unclassified' idioms. This pertains to the entire sample tested, 60 students of mechanical engineering and 30 students of English (90 respondents altogether). The results produced by these criteria can be seen in the following table:

Idiom group	**N**	**Min.**	**Max.**	**Mean**	**Std. Deviation**
Correct answers – visuo-spatial bodily	90	.00	18.00	7.1	4.69568
Correct answers – bodily only	90	.00	13.00	4.4	4.06810
Correct answers – random non-bodily	90	.00	11.00	2.2	2.63533
Valid N (listwise)	90				

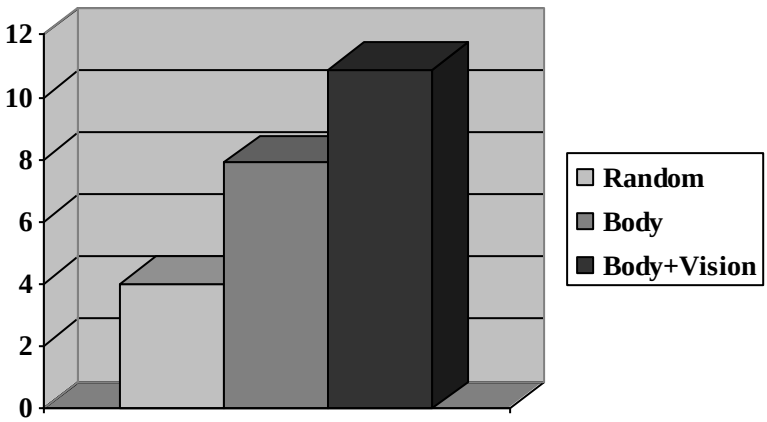
Table 1. The number of the correct interpretations of the three groups of idioms

The figures show results for the entire sample. On average, if the stricter criterion was applied, out of the total twenty idioms, the subjects properly interpreted 2.2 random non-bodily idioms, 4.4 bodily idioms, and 7.1 visuo-spatial bodily idioms. This can be seen in the following graph:



Graph 1. Correct answers, average: the stricter criterion (Value 4), entire sample (N=90)

If the less strict criterion was considered (correct and partially correct answers) the average number of hits rose: 4.0 random non-bodily idioms, 7.9 bodily idioms, and 10.9 visuo-spatial non-bodily idioms:



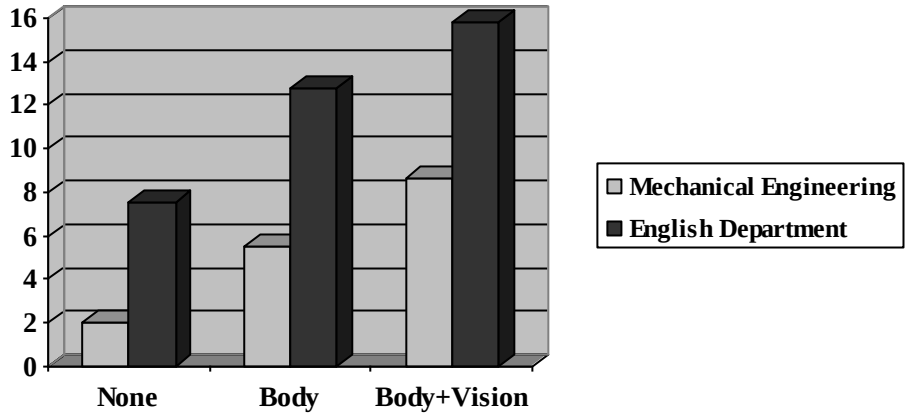
Graph 2. Correct answers, average: the less strict criterion (values 3 and 4), entire sample (N=90)

Secondly, when comparing the performance of the students of English with that of the students of mechanical engineering, we can see that, in *absolute* figures, the students of English performed much better (as expected). The criterion employed in the comparison illustrated in the table was the stricter one:

	Faculty		**Total**
	MechEng	English	
Correct answers – visuo-spatial bodily	4.8	11.8	7.1
Correct answers – bodily only	1.9	9.4	4.4
Correct answers – random non-bodily	1.0	4-8	2.2

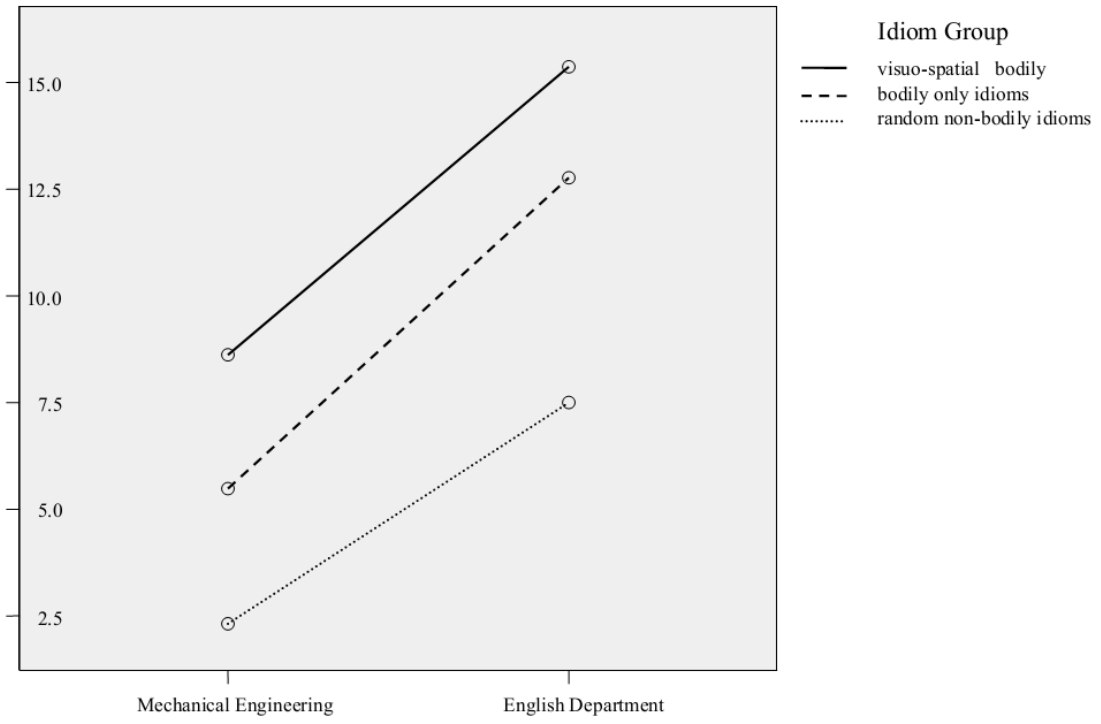
Table 2. The average number of correctly interpreted idioms per idiom group and faculty

The less strict criterion showed similar patterns: the tested students of English gave 7.5 out of 20 successful responses to random non-bodily idioms, whereas the students of mechanical engineering had 2.0 correct answers. In case of bodily-only idioms, the students of English had 12.8 successful interpretations, as compared to 5.5 correct or partially correct answers given by the students of mechanical engineering. Finally, the responses to visuo-spatial bodily idioms were at least partially correct in 15.8 out 20 instances in case of the students of English and in 8.6 instances in case of the students of mechanical engineering. This once again shows that the students of English understood the meanings of the idioms better that the students of mechanical engineering, which can be seen in Graph 3:



Graph 3. Correct answers, average: the less strict criterion (Values 3 and 4) by stratum: Light, students of English (N=30); Dark, students of Mech. Engineering (N=60)

Yet, within each stratum, *internal, relative* differences between the three groups of idioms *for each of the two populations* remained. This is shown by the three almost parallel lines in the fourth graph, suggesting that the students of English performed much better overall, but that the relative transparency/opaqueness of the meanings of three idiom groups seen against one another was almost equal for the two groups of respondents:



Graph 4. Estimated Marginal Means

Two tests were applied to check whether the internal differences for the three idiom groups within population were significant and not a result of accidental variations related to our sample choice. The first one was the nonparametric and robust Friedman test, which tested the differences in the process of interpretation (among visuo-spatial bodily, bodily only and random non-bodily idioms). It confirmed that significant differences do exist and that the ordering of the three groups of idioms, based on how well their meanings were interpreted seems to be the same in both samples. The differences were at the level of 0.0001, which means there is 99.9% probability that the results could be generalized and applied to the whole populations. The second one was the repeated measure ANOVA test, which showed that the between-subject effect ($F=116$, $P<0.0001$), the within-subject effect ($F=240$, $P<0.0001$) and the interaction effect confirm that the results can be applied to both populations and that the statistical differences between the scores of the two groups of respondents are significant.

On the whole, the results show that we have statistically significant differences for the three scores, with the visuo-spatial and bodily components taking the lead when coupled, the bodily component coming second, and the random non-bodily idioms falling behind strikingly. This might serve as a small indication that, independently of one's knowledge of English, a clear reference to a body part facilitates the process of interpreting unknown expressions. Furthermore, the presence of a visual configuration provides additional 'assistance' in the course of revealing the transferred meaning. As a more general outcome of these results, we might hypothesize that embodiment and especially vision seem to serve as stable aiding factors in the course of

meaning construction. This should, of course, be additionally explored in further research.

4. Conclusion

Results suggest that there is a clear difference between the understanding of the three groups of idioms, for two strata, and the entire sample (i.e. regardless of the level of participants' English language proficiency). The visuo-spatial bodily idioms are intuitively understood best, the 'bodily' idioms follow and the idioms with neither of the two components come last. This might provide some support to the thesis of cognitive linguistics that embodiment, especially when coupled with visual perception, provides a basis for the development of abstract concepts. In other words, perhaps both visuo-spatial cognition and embodiment are relevant to the construction of categories. Nevertheless, the exact degree of importance of each of them in the process of conceptualization is yet to be confirmed. If we were to interpret the results along the lines of the abovementioned Mandler-Gibbs opposition, it seems that the study would support Mandler's claims. The question how much it is exactly an opposition certainly remains open and further work is needed to provide a more comprehensive view.

Notes

[i] A similar division was proposed by Makkai (1972). He dubbed the idioms interpretable by the standard rules for interpreting sentences *encoding idioms,* whereas those which correlate with *idiomatic phrases* were named *decoding idioms*.

Appendix

Idiom lists

(a) Visuo-spatial bodily idioms:

English idiom	***Serbian literal translation***
1 She is head over heels.	*Ona je glavom iznad peta.*
2 It is out of my hands.	*To je van mojih ruku.*
3 She has cried her eyes out.	*Isplakala je sopstvene oči.*
4 He follows his nose.	*On prati svoj nos.*
5 She forces his hand.	Ona tera njegovu ruku.
6 He has a finger in every pie.	*On ima prst u svakoj piti.*
7 He has a hand in it.	*On ima ruku u tome.*
8 You have your back to the wall.	*Imaš leđa uza zid.*

9	She keeps them at arm's length.	*Ona ih drži na razdaljini ispružene ruke.*
10	He keeps his head down.	On drži svoju glavu dole.
11	She has laughed her head off.	*Odsmejala je sopstvenu glavu.*
12	He let his hair down	*Raspustio je kosu.*
13	It is on everyone's lips.	*To je na svačijim usnama.*
14	He has put his back into it.	*Uneo je leđa u to.*
15	He has put his foot in his mouth.	*Stavio je stopalo u usta.*
16	Her blood is up.	*Njena krv je gore.*
17	Her heart is in her mouth	*Srce joj je u ustima.*
18	She has set tongues wagging	*Razmahala je jezike.*
19	He has tried his hand at it.	*Isprobao je ruku na tome.*
20	He said it with tongue in cheek.	*Rekao je to sa jezikom u obrazu.*

(b) Bodily only idioms:

	English idiom	**Serbian literal translation**
21	She had a change of heart.	*Imala je promenu srca.*
22	They have bad blood.	*Imaju lošu krv.*
23	He is easy on the ear.	*On je lak na uhu.*
24	It is hot on his heels.	*Vruće je na njegovim petama.*
25	She cooled his heels.	*Ohladila mu je pete.*
26	He did it by the skin of his teeth.	*Uradio je to kožom svojih zuba.*
27	He got a thick ear.	*Dobio je debelo uvo.*
28	She got cold feet.	*Dobila je hladna stopala.*
29	She got her feet wet.	*Nakvasila je stopala.*
30	We gave them their head.)	*Dali smo im njihovu glavu.*
31	He has a brass neck.	*On ima limeni vrat.*
32	She had a head start.	*Imala je početak od jedne glave.*
33	he has a sweet tooth.	*Ona ima sladak zub.*
34	She has feet of clay.	*Ona ima glinena stopala.*
35	You have my ear.	*Imaš moje uvo.*
36	He knows it by heart.	*On zna to srcem.*
37	He lended her an ear	*Pozajmio joj je uvo.*
38	I have lost heart	*Izgubio sam srce.*
39	He made no bones about it.	*Nije pravio kosti oko toga.*
40	He is wet behind the ears	*On je mokar iza ušiju.*

(c) Random non-bodily idioms:

English idiom	**Serbian literal translation**
41 It is a blind alley.	*To je slepi prolaz.*
42 He is a couch potato.	*On je krompir sa kauča.*
43 It is a dog and pony show.	*To je predstava sa psom i ponijem.*
44 It is a happy hunting ground.	*To je veselo lovište.*
45 It is a straw in the wind.	*To je slamka na vetru.*
46 He is a sugar daddy.	*On je šećerni tata.*
47 It is a turn of the screw.	*To je obrt šrafa.*
48 It is an old chestnut.	*To je stari kesten*
49 He did it at the drop of a hat.	*Uradio je to na pad šešira.*
50 You are in your cups.	*Ti si u svojim peharima.*
51 He is on the rack.	*On je na spravi za mučenje.*
52 He is the meat in the sandwich.	*On je meso u sendviču.*
53 He beats the bushes.	*On udara po žbunju.*
54 It is a double speak.	*To je dupli govor.*
55 He fell off the wagon.)	*Pao je sa kola.*
56 She put it to bed.	*Smestila je to u krevet.*
57 It is the long and the short of it.	*To je dugo i kratko od toga.*
58 She threw good money after bad.	*Bacila je dobar novac nakon lošeg.*
59 She is in the pudding club.	*Ona je u klubu pudinga.*
60 He is off his rocker.	*On je van svoje stolice za ljuljanje*

References

Arnheim, R. (1969). *Visual Thinking*. Berkeley: University of California Press.

Chomsky, N. (1981). Principles and parameters in syntactic theory. In N. Hornstein and Lightfoot D. (eds.), *Explanation in Linguistics*. London: Longman. pp.123–146.

Chomsky, N. (1988). *Language and Problems of Knowledge.* Cambridge, MA: MIT Press.

Chomsky, N. (1995). *The Minimalist Program*. Cambridge, MA: MIT Press.

Fauconnier G. and M. Turner (2002). *The Way We Think: Conceptual Blending and the Mind's Hidden Complexities*. New York: Basic Books.

Fodor J. and J. Katz (1964). *The Structure of Language: Readings in the Philosophy of Language.* Englewood Cliffs: Prentice Hall.

Gibbs, R. (2006). *Embodiment and Cognitive Science.* Cambridge: Cambridge University Press.

Gibbs, R. (2008). Image schemas in conceptual development: What happened to the body? *Philosophical Psychology* 21 (2): 231–239.

Hampe, B. (ed.) (2005). *From Perception to Meaning: Image Schemas in Cognitive Linguistics.* Berlin: Mouton de Gruyter.

Jackendoff, R. (1983). *Semantics and Cognition*. Cambridge, MA: MIT Press.

Jackendoff, R. (1990). *Semantic Structures*. Cambridge, MA: MIT Press.

Jackendoff, R. (2002). *Foundations of Language: Brain, Meaning, Grammar, Evolution*. Oxford: Oxford University Press.

Johnson, M. (1987). *The Body in the Mind: The Bodily Basis of Meaning, Imagination, and Reason*. Chicago: University of Chicago Press.

Johnson, M. (2005). *Developmental Cognitive Neuroscience*. 2nd edition. Oxford: Blackwell Publishing.

Johnson, M. and G. Lakoff (2002). Why cognitive linguistics requires embodied realism. *Cognitive Linguistics* 13 (3): 245-263.

Katz J. (1973). Compositionality, idiomaticity, and lexical substitution. In S. Anderson and P. Kiparsky (eds.), *A Festschrift for Morris Halle*. New York: Holt, Rinehart, and Winston. pp.357-76.

Keil, F. (2008). Space – The Primal Frontier? Spatial Cognition and the Origins of Concepts. *Philosophical Psychology*. 21(2): 241–250.

Lakoff, G. (1987). *Women, Fire and Dangerous Things: What Categories Reveal About the Mind*. Chicago: University of Chicago Press.

Lakoff, G. and M. Johnson (1980). *Metaphors We Live By*. Chicago: University of Chicago Press.

Lakoff, G. and M. Johnson (1999). *Philosophy in the Flesh*. New York: Basic Books.

Landau, B. and L.R. Gleitman (1985). *Language and Experience: Evidence from the Blind Child*. Cambridge, MA: Harvard University Press.

Langacker, R. (1993). Reference-point Constructions. *Cognitive Linguistics* 4: 1–38.

Linden E.J. (1992). Idioms, non-literal language and knowledge representation. *Computational Intelligence* 8 (3): 433–453.

Makkai, A. (1972). *Idiom structure in English*. The Hague: Mouton.

Mandler, J. (1992). How to build a baby II: Conceptual primitives. *Psychological Review* 99: 587–604.

Mandler, J. (2006). *The Foundations of Mind: Origins of Conceptual Thought*. Oxford: Oxford University Press.

Mandler, J. (2008a). On the birth and growth of concepts. *Philosophical Psychology* 21 (2): 207–230.

Mandler, J. (2008b). Infant concepts revisited. *Philosophical Psychology* 21 (2): 269–280.

Marr, D. (1982). *Vision*. San Francisco: W. H. Freeman.

Nunberg S., I. Sag and T. Wasow T (1994). Idioms. *Language* 70: 491–538.

Pinker, S. (1997). *How the Mind Works*. New York: W. W. Norton & Company.

Rosch, E. (1975). Cognitive representations of semantic categories. *Journal of Experimental Psychology* 104: 192–233.

Smith, E. and D. Medin (1981). *Categories and Concepts*. Cambridge, MA: Harvard University Press.

Sweetser, E. (1990). *From Etymology to Pragmatics.* Cambridge: Cambridge University Press.

Wierzbicka, A. (1996). *Semantics: Primes and Universals*. New York: Oxford University Press.

Dictionaries:

Cambridge International Dictionary of Idioms (1998). Cambridge University Press.

Oxford Dictionary of Idioms (1999). Oxford University Press.

Serbian-English Dictionary of Idioms (1995). 3rd Edition. Milosavljević, B. and M. Williams-Milosavljević. Belgrade: Srpska književna zadruga.